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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/726,584	12/04/2003	Sung-Su Jung	8734.266.00 US	5039

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EXAMINER	
KOCH, GEORGE R	

ART UNIT	PAPER NUMBER
1791	

MAIL DATE	DELIVERY MODE
05/30/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/726,584	JUNG ET AL.	
	Examiner	Art Unit	
	George R. Koch III	1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 April 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3 and 5-15* is/are pending in the application.

4a) Of the above claim(s) *11-15* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1, 3, 5-10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 4/22/2008 has been entered.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 3, and 5-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Ishida (JP06-114,315; machine translation included).

As to claim 1, Ishida discloses a dispenser (see Figures 1-5 and the entire specification) capable of operating on a liquid crystal display panel, comprising:

a table for mounting a substrate (substrate adsorption section 8, which is manipulated by the X and Y axis tables 5 and 6 - see paragraphs 0009-0010);

a syringe (cartridge 2) having a nozzle (nozzle 1) provided at an end thereof; a body in which the syringe is mounted (Z axis table section 4);

a vertical driving stepping motor for moving the body in a vertical direction (motor 18, and see also figure 4, which shows the motor 18 interacting with items a Z axis motor controller 20 and z-axis motor driver 21; see also paragraphs 0023-0026, especially 0025, for the operation;

a first sensor (Contact detection sensor 13) in the body for detecting whether the nozzle of the syringe is in contact with the substrate (the abstract recites that the paste nozzle is brought into contact with the base, and "the contact is detected by the contacting detection sensor 13"; see also paragraphs 0014-0018, which describes the contact detecting sensor's function), and this is sensor is considered to be in the body;

a second sensor (optical displacement sensor 3) for detecting a gap distance between the nozzle and the substrate (see also paragraphs 0019-0022);

and a main unit for controlling (control unit 11) the vertical driving stepping motor (motor 18, controlled by electrical control elements of the Z-axis motor controller 20 and Z axis motor driver 21) in response to an output from the second sensor to obtain a desired gap distance between the nozzle and the substrate (Figure 4 shows this operation; see especially paragraph 0025, which relates the optical displacement sensor input to the controller outputs);

wherein the first sensor includes a magnetic sensor (Ishida discloses a magnetic eddy current sensor; see paragraph 0016 which discloses the magnetic flux), sending electric signals (the impedance signal is an electrical signal, see paragraph 0016) to the main unit (Figure 4 shows a connection between sensor 13 and subcomponent 16 of main unit 11) that changes (see paragraph 0016) as the body is lowered by the vertical driving stepping motor towards the table.

The main unit is capable of being used such that the main unit recognizes an absence of change in the electrical signal as the nozzle is in contact with the substrate and controls the

vertical driving stepping motor to stop the lowering of the body. Additionally, paragraph 0015-0016 recites that (emphasis added):

> [0015] In drawing 2, the **contact** detection sensor 13 in which the nozzle support 12 detects that the paste delivery of a nozzle 1 contacted the front face of a substrate 7 again by fixed part 4b through slide section 12a and engagement section 12b is being fixed to the Z-axis table section 4 for the optical displacement meter 3 of the Z-axis table section 4 by fixed part 4a by fixed part 4c, respectively.
>
> [0016] As for the contact detection sensor 13, an eddy current type displacement gage is used as an example. Emit RF magnetic flux to the nozzle support 12 from a sensor coil, make the nozzle support 12 generate an eddy current, it is made for the field by this eddy current to change the impedance of a sensor coil, and this measures distance from the **change of an impedance since corresponding to distance in change of this impedance**.

In the case of Ishida's contact sensor, when contact occurs, the impedance signal cannot because the distance cannot change. Thus, contact would be recognize by the absence of change in the impedance signal, which is an electrical signal.

As to claim 3, Ishida discloses that the second sensor is a laser displacement sensor (see paragraph 0020, which discloses that the optical displacement meter includes a light emitting device emits a laser beam which is received by a photodetector; i.e., a laser displacement sensor).

As to claim 5, Ishida discloses that the table is horizontally movable in forward/backward and left/right directions (via the operation of the X axis table section and the Y axis table section, which move the substrate adsorption section 8).

As to claim 6, Ishida discloses that the second sensor comprises: a light emitting unit for irradiating laser on the surface of the substrate; and a light receiving unit for receiving laser reflected from the substrate (see paragraph 0020, which discloses that the sensor includes a light emitting device emits a laser beam which is received by a photodetector).

As to claim 7, Ishida discloses that the light receiving unit detects a gap distance between the nozzle and the substrate according to a position on a surface of the light receiving unit (paragraph 0020 talks about measuring the distance between the nozzle and substrate, i.e., the gap distance between the nozzle and the substrate).

As to claims 8, 9, or 10, the apparatus and cartridge of Ishida is capable of being filled with sealant, liquid crystal, or Silver (Ag). Furthermore, the manner of operating the device does not differentiate apparatus claim from the prior art. MPEP 2114. The choice of dispensing material can be interpreted as a manner of operating the device, and under MPEP 2114, it does not differentiate apparatus claims from the prior art. The material or article worked upon does not limit apparatus claims. MPEP 2115. The sealant, liquid crystal or silver can be interpreted as the material worked upon by the dispenser, and therefore, under MPEP 2115, it would not limit the apparatus claims.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. Claims 1, 3, and 5-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishida (JP06-114,315; machine translation included) in view of Stepper Motor System Basics, published at www.ams2000.com on 8/7/2000.

As to claim 1, Ishida discloses a dispenser (see Figures 1-5 and the entire specification) capable of operating on a liquid crystal display panel, comprising:

a table for mounting a substrate (substrate adsorption section 8, which is manipulated by the X and Y axis tables 5 and 6 - see paragraphs 0009-0010);

a syringe (cartridge 2) having a nozzle (nozzle 1) provided at an end thereof; a body in which the syringe is mounted (Z axis table section 4);

a vertical driving stepping motor for moving the body in a vertical direction (motor 18, and see also figure 4, which shows the motor 18 interacting with items a Z axis motor controller 20 and z-axis motor driver 21; see also paragraphs 0023-0026, especially 0025, for the operation;

a first sensor (Contact detection sensor 13) in the body for detecting whether the nozzle of the syringe is in contact with the substrate (the abstract recites that the paste nozzle is brought into contact with the base, and "the contact is detected by the contacting detection sensor 13"; see also paragraphs 0014-0018, which describes the contact detecting sensor's function), and this is sensor is considered to be in the body;

a second sensor (optical displacement sensor 3) for detecting a gap distance between the nozzle and the substrate (see also paragraphs 0019-0022);

and a main unit for controlling (control unit 11) the vertical driving motor (motor 18, controlled by electrical control elements of the Z-axis motor controller 20 and Z axis motor driver 21) in response to an output from the second sensor to obtain a desired gap distance between the nozzle and the substrate (Figure 4 shows this operation; see especially paragraph 0025, which relates the optical displacement sensor input to the controller outputs),

wherein the first sensor includes a magnetic sensor (Ishida discloses a magnetic eddy current sensor; see paragraph 0016 which discloses the magnetic flux), sending electric signals (the impedance signal is an electrical signal, see paragraph 0016) to the main unit (Figure 4 shows a connection between sensor 13 and subcomponent 16 of main unit 11) that changes (see paragraph 0016) as the body is lowered by the vertical driving stepping motor towards the table.

Ishida appears to disclose a step/stepping/stepper motor, since it talks about "measures the rotation of the motor" (see paragraph, 0025) actions which suggest that the motor rotates in steps. In any event, it would have been obvious to use a stepper motor. Among the well known benefits of stepping motors are accurate control of the movement of the object, by allowing partial rotation of the motor (see, for example, the Stepper Motor System Basics, introduction section on page -2), and especially has the benefits of low cost, high reliability, high torque at low speeds, and a simple, rugged construction that operates in almost any environment. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have utilized a stepping motor in order to achieve the benefits of low cost, high reliability, high torque at low speeds, and a simple, rugged construction that operates in almost any environment.

Additionally, Ishida's first sensor is considered to be "in the body". However, it is unclear what applicants intends to be the scope of the limitation "in the body" as applicant fails to present any arguments or remarks to aid construction of this new limitation. In any event, the placement of the magnetic sensor anywhere in the dispensing structure/body, such as next to the syringe, within the syringe, in or adjacent the nozzle is considered obvious. One of ordinary skill would appreciate that the sensor can be calibrated according based on its location, and such sensor calibration is routine and well within the capabilities of one of ordinary skill in the art. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have placed the first sensor "in the body".

The main unit is capable of being used such that the main unit recognizes an absence of change in the electrical signal as the nozzle is in contact with the substrate and controls the vertical driving stepping motor to stop the lowering of the body. Additionally, paragraph 0015-0016 recites that (emphasis added):

> [0015] In drawing 2, the **contact** detection sensor 13 in which the nozzle support 12 detects that the paste delivery of a nozzle 1 contacted the front face of a substrate 7 again by fixed part 4b through slide section 12a and engagement section 12b is being fixed to the Z-axis table section 4 for the optical displacement meter 3 of the Z-axis table section 4 by fixed part 4a by fixed part 4c, respectively.
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> [0016] As for the contact detection sensor 13, an eddy current type displacement gage is used as an example. Emit RF magnetic flux to the nozzle support 12 from a sensor coil, make the nozzle support 12 generate an eddy current, it is made for the field by this eddy current to change the impedance of a sensor coil, and this measures distance from the **change of an impedance since corresponding to distance in change of this impedance**.

In the case of Ishida's contact sensor, when contact occurs, the impedance signal cannot because the distance cannot change. Thus, contact would be recognize by the absence of change in the impedance signal, which is an electrical signal.

As to claim 3, Ishida discloses that the second sensor is a laser displacement sensor (see paragraph 0020, which discloses that the optical displacement meter includes a light emitting device emits a laser beam which is received by a photodetector; i.e., a laser displacement sensor).

As to claim 5, Ishida discloses that the table is horizontally movable in forward/backward and left/right directions (via the operation of the X axis table section and the Y axis table section, which move the substrate adsorption section 8).

As to claim 6, Ishida discloses that the second sensor comprises: a light emitting unit for irradiating laser on the surface of the substrate; and a light receiving unit for receiving laser reflected from the substrate (see paragraph 0020, which discloses that the sensor includes a light emitting device emits a laser beam which is received by a photodetector).

As to claim 7, Ishida discloses that the light receiving unit detects a gap distance between the nozzle and the substrate according to a position on a surface of the light receiving unit (paragraph 0020 talks about measuring the distance between the nozzle and substrate, i.e., the gap distance between the nozzle and the substrate).

As to claims 8, 9, or 10, the apparatus and cartridge of Ishida is capable of being filled with sealant, liquid crystal, or Silver (Ag). Furthermore, the manner of operating the device does not differentiate apparatus claim from the prior art. MPEP 2114. The choice of dispensing material can be interpreted as a manner of operating the device, and under MPEP 2114, it does not differentiate apparatus claims from the prior art. The material or article worked upon does not limit apparatus claims. MPEP 2115. The sealant, liquid crystal or silver can be interpreted as the material worked upon by the dispenser, and therefore, under MPEP 2115, it would not limit the apparatus claims.

Response to Arguments

Applicant's arguments filed 4/22/2008 have been fully considered but they are not persuasive. Applicant's sole arguments is that Ishida does not disclose "The main unit is capable of being used such that the main unit recognizes an absence of change in the electrical signal as the nozzle is in contact with the substrate and controls the vertical driving stepping motor to stop the lowering of the body." However, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In this case, Ishida is capable of functioning such that the main unit is capable of being used such that the main unit recognizes an absence of change in the electrical signal as the nozzle is in contact with the substrate and controls the vertical driving stepping motor to stop the lowering of the body.

Addtionally, the main unit **is** being used such that the main unit recognizes an absence of change in the electrical signal as the nozzle is in contact with the substrate and controls the vertical driving stepping motor to stop the lowering of the body. Paragraph 0015-0016 recites that (emphasis added):

> [0015] In drawing 2, the **contact** detection sensor 13 in which the nozzle support 12 detects that the paste delivery of a nozzle 1 contacted the front face of a substrate 7 again by fixed part 4b through slide section 12a and engagement section 12b is being fixed to the Z-axis table section 4 for the optical displacement meter 3 of the Z-axis table section 4 by fixed part 4a by fixed part 4c, respectively.
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> [0016] As for the contact detection sensor 13, an eddy current type displacement gage is used as an example. Emit RF magnetic flux to the nozzle support 12 from a sensor coil, make the nozzle support 12 generate an eddy current, it is made for the field by this eddy current to change the impedance of a sensor coil, and this measures distance

from the **change of an impedance since corresponding to distance in change of this impedance**.

In the case of Ishida's contact sensor, when contact occurs, the impedance signal cannot because the distance cannot change. Thus, contact would be recognized by the absence of change in the impedance signal, which is an electrical signal.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to George R. Koch III whose telephone number is (571) 272-1230 (TDD only). If the applicant cannot make a direct TDD-to-TDD call, the applicant can communicate by calling the Federal Relay Service at 1-866-377-8642 and giving the operator the above TDD number. The examiner can also be reached by E-mail at george.koch@uspto.gov in accordance with MPEP 502.03. The examiner can normally be reached on M-F 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Philip Tucker can be reached on (571) 272-1095. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/George R. Koch III/
Primary Examiner, Art Unit 1791

5/27/2008